

REMARKS

Upon entry of the present amendment, claims 2-3, 5-7, 9-14, and 25 will remain pending in this application. Claim 1 is canceled in this amendment. Claims 4, 8, and 15-24 were previously canceled. New claims 26-27 have been added and are directed to methods and computer-readable storage media. Applicant respectfully submits that no new matter is added by the present amendment. In particular, Applicant submits that the matter added to claim 25 is supported in the Specification at least at the discussion of the compression scheme for hierarchical type IDs at paragraph [0120].

Claims 1, 5-7, and 25 stand objected to. Claims 1-3, 5-7, 9-14, and 25 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement. Claims 1, 3, and 5-7 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over U.S. Patent Application Publication No. 2005/0055355 (“Murthy et al.”) in view of U.S. Patent Application Publication No. 2005/0033733 (“Shadmon et al.”). Claim 2 stands rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Murthy et al. in view of Shadmon et al. and further in view of U.S. Patent No. 6,643,633 (“Chau et al.”). Claims 1, 3, and 5-7 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Murthy et al. in view of U.S. Patent No. 6,279,007 (“Uppala”). Claim 2 stands rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Murthy et al. in view of Uppala and further in view of Chau et al.

Interview Summary

Applicant’s undersigned representative, Mr. Eiferman, and Examiner Cam Y. T. Truong participated in a telephonic interview on June 24, 2008, to discuss the rejections under 35 U.S.C. § 103. It was suggested that claim 25 would be allowable if it were amended to recite that the type value is compressed by separating concatenated type values by a reserved separator byte, and if claim 1 were canceled.

Claim Objections

Claims 1, 5-7, and 25 stand objected to. Claim 1 is canceled in this paper. Applicant has corrected claim 25 as suggested by the Examiner in the May 12, 2008, Office Action, and

has amended claims 5-7 to depend from new claim 26. Accordingly, Applicant respectfully requests that the objections to the claims be withdrawn.

Rejections under 35 U.S.C. § 112

Claims 1-3, 5-7, 9-14, and 25 stand rejected under 35 U.S.C. § 112 as allegedly failing to comply with the written description requirement. In particular, it is alleged that the limitations that were added to claim 25 in the office action response filed on February 13, 2008, are not described at paragraphs [0088] and [0090]-[0092] of the Specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors possessed the claimed invention when the application was filed.

Applicant respectfully traverses the rejection. As to claim 25, the added limitations (appearing in italics) are supported at least at the following quoted passages of the Specification (appearing in quotation marks with paragraph numbers in brackets):

creating a histogram over the pre-computed values, the histogram having a plurality of elements representing document types in a hierarchy of document types, each element associated with a quantity of documents of the document type represented by said each element: “To estimate the selectivity of a type hierarchy query over a set of objects, it is desirable to use the encoding described herein at step 900, store the results of this encoding as a column at step 910, and create a histogram over that column (either separately on the column or as a result of creating an index on the column) at step 920.” [0090] Paragraph [0089] states that “[a]spects of the invention are directed to an encoding technique for the histogram, so that the type hierarchy can be discerned without the need for look-up techniques. In accordance with the encoding technique, each type is given a number or other identifier, as shown in the annotated type hierarchy of Figure 6. Thus, a histogram can be generated in which the hierarchy can be identified using this variable length encoding scheme. For example, as shown in Figure 8, it can be readily identified that 1.2.4 is a subtype of 1.2, and that 1.2 is a subtype of 1, along with the numbers of each type / subtype.”

encoding the query to describe one or more documents to retrieve based on an encoded query type: “Then, at step 930, the query type is encoded, describing which objects to retrieve from a type or any subtype of that type.” [0091]

for each element of the histogram, determining whether the encoded query type is a prefix of the document type represented by the element of the histogram: “For each element in the histogram, it is determined at step 940 if the encoded query type is a prefix of the histogram entry.” [0091]

for each element of the histogram for which the encoded query type is determined to be a prefix of the document type represented by the element of the histogram, adding the associated quantity to a sum of matching elements: “If it is, then at step 950, the number of elements associated with this histogram step is added to the number of other 'matching elements' from the histogram.” [0091]

for each element of the histogram for which the encoded query type is determined not to be a prefix of the document type represented by the element of the histogram, adding the associated quantity to a sum of non-matching elements: “If it is not a prefix, then at step 960, the number of elements associated with this histogram step is added to the 'non-matching elements' from the histogram.” [0091, as amended above]

generating the estimate of the selectivity of the query as a function of the sums of matching elements and non-matching elements: “When all histogram steps have been processed, the selectivity estimate of this hierarchical type-matching query is determined at step 990, by taking the number of 'matching elements' and dividing it by the sum of the number of 'matching elements' and the number of 'non-matching elements'.” [0092]

Based on the above reasoning, Applicant respectfully submits that the limitations added to claim 25 are sufficiently supported in the Specification.

It is also alleged that the limitation “type path” “that is constructed as a function of the document type” added to claim 1 is not described at paragraph [0075] of the Specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors possessed the claimed invention when the application was filed. Applicant has canceled claim 1. Claims 2-3 and 5-7, which previously depended from claim 1, have been amended to depend from new claim 26.

Based at least on the above reasoning, Applicant respectfully submits that claims 2-3, 5-7, 9-14, and 25 satisfy the written description requirement and requests that the rejection under 35 U.S.C. § 101 be reconsidered and withdrawn.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 1, 3, and 5-7 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Murthy et al. in view of Shadmon et al. Claims 1, 3, and 5-7 also stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Murthy et al. in view of Uppala. Claim 1 has been canceled. Claims 3 and 5-7 have been amended to depend from new claim 26.

Claim 2 stands rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Murthy et al. in view of Shadmon et al. and further in view of Chau et al. Claim 2 also stands rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Murthy et al. in view of Uppala and further in view of Chau et al. Claim 2 has been amended to depend from new claim 26.

Claim 25 has been amended to recite the additional limitation “wherein each pre-computed value is generated by concatenating respective type values of document types along a path from a root document type to the document type associated with the document with which said each pre-computed value is associated, and wherein each pre-computed value is compressed by separating the concatenated type values by a reserved separator byte.” Applicant's review of the cited references suggests that the cited references do not appear to disclose this limitation, and in particular do not appear to disclose compressing the pre-computed value by separating concatenated type values by a reserved separator byte.

New independent claims 26-27 contain limitations substantially similar to those recited in claim 25. Accordingly, Applicant respectfully submits that claims 26-27, as well as claims 2-3 and 5-7, which depend from claim 26, are also patentable over the prior art of record.

Based at least on the above remarks, Applicant respectfully submits that the currently pending claims are patentable over the prior art of record and requests reconsideration and removal of the rejections under 35 U.S.C. § 103(a).

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PATENT

CONCLUSION

In view of the above amendments and remarks, Applicant respectfully submits that the present application is in condition for allowance. Reconsideration of the application is respectfully requested.

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/Kenneth R. Eiferman/

Kenneth R. Eiferman

Registration No. 51,647

Woodcock Washburn LLP
Cira Centre
2929 Arch Street, 12th Floor
Philadelphia, PA 19104-2891
Telephone: (215) 568-3100
Facsimile: (215) 568-3439